

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A thermal insulation product comprising
a loose fill; and
at least one carbonate dispersed in the loose fill,
wherein the at least one carbonate comprises particles having a mean diameter of
from 3 to 6 μm .

Claim 2 (Original): The product according to Claim 1, wherein the loose fill
comprises fibers selected from the group consisting of cellulose-containing fibers, synthetic
polymer fibers, rock wool fibers, and glass fibers.

Claim 3 (Original): The product according to Claim 1, wherein the loose fill
comprises at least one of shredded recycled newspapers and ground recycled newspapers.

Claim 4 (Original): The product according to Claim 1, wherein the at least one
carbonate is dispersed uniformly in the loose fill.

Claim 5 (Original): The product according to Claim 1, wherein the product
comprises the at least one carbonate in an amount of from 1 to 40% by weight.

Claim 6 (Canceled).

Claim 7 (Original): The product according to Claim 1, wherein the at least one
carbonate comprises calcium carbonate.

Claim 8 (Currently Amended): The product according to Claim 1, further comprising a binder joining the at least one carbonate to the loose fill.

Claim 9 (Currently Amended): The product according to Claim 1, further comprising a mineral oil dispersed in the loose fill.

Claim 10 (Currently Amended): The product according to Claim 1, wherein the at least one carbonate absorbs infrared radiation having a wavelength in a range of 4 to 40 μm .

Claim 11 (Withdrawn): A method of using a thermal insulation product, the method comprising positioning the product of Claim 1 in an interior of a hollow or open object.

Claim 12 (Withdrawn): A method of making a thermal insulation product, the method comprising dispersing at least one carbonate in a loose fill.

Claim 13 (Withdrawn): The method according to Claim 12, further comprising positioning the loose fill in an interior of a hollow or open object.

Claim 14 (Withdrawn): The method according to Claim 13, wherein the positioning comprises pouring or blowing the loose fill into the interior of the hollow or open object.

Claim 15 (Withdrawn): The method according to Claim 13, wherein the at least one carbonate is dispersed in the loose fill before the loose fill is positioned in the interior of the hollow or open object.

Claim 16 (Withdrawn): The method according to Claim 12, wherein the at least one carbonate is dispersed uniformly in the loose fill.

Claim 17 (Withdrawn): The method according to Claim 12, wherein the dispersing comprises

wetting the loose fill with a liquid mixture containing a liquid and the at least one carbonate to form a wet loose fill mixture; and

removing the liquid from the wet loose fill mixture.

Claim 18 (Withdrawn): The method according to Claim 17, wherein the liquid is removed from the wet loose fill mixture by air drying.

Claim 19 (Withdrawn): The method according to Claim 17, further comprising dispersing a binder in the liquid mixture.

Claim 20 (Withdrawn): The method according to Claim 12, further comprising dispersing a binder in the loose fill with the at least one carbonate.

Claim 21 (Withdrawn): The method according to Claim 12, further comprising dispersing mineral oil in the loose fill.

Claim 22 (Withdrawn): The method according to Claim 12, wherein the at least one carbonate comprises calcium carbonate.

Claim 23 (Withdrawn): The method according to Claim 12, wherein the loose fill comprises fibers elected from the group consisting of cellulose-containing fibers, synthetic polymer fibers, rock wool fibers, and glass fibers.

Claim 24 (Withdrawn): The method according to Claim 12, wherein the loose fill comprises at least one of shredded recycled newspapers and ground recycled newspapers.

Claim 25 (New): The product according to Claim 1, wherein the at least one carbonate comprises particles having a mean diameter of from 4 to 6 μm .

Claim 26 (New): The product according to Claim 1, wherein the at least one carbonate comprises particles having a mean diameter of from 3 to 5 μm .

Claim 27 (New): The product according to Claim 1, wherein the loose fill is in the form of at least one of flakes, powders, granules or nodules.

Claim 28 (New): The product according to Claim 1, wherein the loose fill is at least one inorganic material selected from the group consisting of diatomaceous silica, perlite, vermiculite, silica aerogel, calcium silicate, opacified colloidal alumina, alumina bubbles, zirconia bubbles, and granulated charcoal.

BASIS FOR THE AMENDMENT

Claims 1-5 and 7-28 are active in the present application. Claim 6 has been canceled. Claims 1-10 and 25-28 are currently under active prosecution. Claim 1 has been amended to include the limitations of previous Claim 6. Claims 11-24 are non-elected claims withdrawn by restriction. Claims 25-28 are new claims. Support for new Claim 25 is found on page 6, line 16 in the original claims. Support for new Claim 26 is found in Table 2 on page 7. Support for new Claim 27 is found on page 1, lines 21-22. Support for new Claim 28 is found on page 4, lines 25-29.

No new matter is believed to have been added by this amendment.

REQUEST FOR RECONSIDERATION

Applicants thank the Examiner for indicating that the drawings filed on November 8, 2001 are acceptable. Applicants further thank Examiner Singh for the helpful and courteous discussion of January 6, 2004. During the discussion, Applicants U.S. representative presented arguments that a thermal insulation product containing a carbonate of specific mean diameter is able to provide significantly improved insulation properties in comparison to carbonates of other mean diameter. Applicants' representative directed the Examiner's attention to Figure 4 to demonstrate the reduced K-value achievable with a carbonate of the claimed mean diameter.

Claim 1 has been amended herein to incorporate the limitations of previous Claim 6. The claimed thermal insulation product is now required to contain a carbonate which comprises particles having a mean diameter of from 3 to 6 micron. Original Claim 7 further limits the carbonate to calcium carbonate.

Applicants have described a thermal insulation product that benefits from the inclusion of carbonate particles within the claimed mean diameter range. Applicants have demonstrated that improved insulation properties (e.g., thermal conductivity) are achievable when a carbonate particle of mean diameter of from 3 to 6 μm is present in a loose filler. In Table 2 on page 7 in the specification the thermal conductivity of three loose fill thermal insulation products is presented. As is readily apparent from the Table the loose fill having a carbonate with a mean diameter of 5 μm provides the lowest thermal conductivity. As is readily recognized by those of ordinary skill in the art, a low thermal conductivity is desirable since it provides improved insulation characteristics. Applicants have demonstrated the improved thermal conductivity pictorially in Figure 4 of the specification. Figure 4 is appended hereto for convenience.

As is evident from Figure 4, the thermal conductivity of calcium carbonate particles does not respond linearly to the particle size of the carbonate when the carbonate contains particles in the range shown in Figure 4. Applicants have demonstrated the criticality of carbonate particles in the range of from 3 to 6 μm to achieving superior thermal conductivity. Carbonates in the range of from 3 to 6 μm are able to provide a lower thermal conductivity than carbonates having a mean diameter less of than 3 μm or greater than 6 μm .

The Office rejected Claims 1-10 under 35 U.S.C. § 102(b) or, in the alternate, 35 U.S.C. § 103(a) in view of a patent to Wihsmann (U.S. 6,086,998).

Amended Claim 1 requires that the carbonate of the claimed thermal insulation product have a mean diameter of from 3 to 6 μm . Wihsmann is silent with regards to the particle size of either the filler (e.g., column 1, line 62) or the calcium carbonate (e.g., column 2, line 48). Nowhere does Wihsmann indicate that the mean diameter of the filler or the calcium carbonate can play an important role in preparing a thermal insulation product of minimal thermal conductivity. Wihsmann has not recognized that the particle size of the carbonate particles is a result effective variable and furthermore nowhere discloses that the fillers or calcium carbonate of the prior art fiber products should comprise particles having a mean diameter of from 3 to 6 μm .

Applicants submit that Wihsmann cannot anticipate the presently claimed invention in view of Wihsman's silence with regards to the mean particle size of carbonate particles. Further, Applicants submit that Wihsmann cannot render the claimed invention obvious since Wihsmann nowhere discloses that thermal insulation products of improved thermal conductivity can be obtained by limiting the mean diameter of the carbonate particles to from 3 to 6 μm .

New dependent Claims 25 and 26 further limit the mean diameter of the claimed carbonate particles.

New dependent Claim 27 limits the loose fill to those insulation products which contain at least one of flakes, powders, granules or nodules. Wihsmann nowhere discloses that the prior art composition may comprise loose fill material of such form. Instead, Wihsmann discloses that the prior art material is a “fiber product” (see Title). New dependent Claim 27 is therefore further patentable over Wihsmann in view of the prior art reference’s silence with regards to particle forms for the loose fill such as flakes, powders, granules and nodules.

New dependent Claim 28 further limits the loose fill of the claimed thermal insulation product to those materials which are the inorganic materials recited in the Markush group. Wihsmann requires that the prior art material is an “fiber product” that must contain between 30 and 97 wt.% of a cellulose-based fiber (see Claim 1 of Wihsmann). Wihsmann nowhere discloses that the prior art fiber product can contain the inorganic materials recited in new dependent Claim 28. Therefore, new dependent Claim 28 is further patentable over the prior art reference applied by the Office.

The Office further rejected Claims 1-10 in view of co-pending application 09/858,471 stating that the present claims are rejected under the judicially created doctrine of obviousness-type double patenting. The claims of the co-pending application require the presence of fibers and at least one carbonate dispersed on the fibers and further require that the prior art thermal insulation product have a porous structure. The claims of the co-pending application containing at least two limitations which are not present in the claims of the present application (namely, (1) a requirement that fibers are present and (2) that the thermal insulation product of the co-pending application have a porous structure.) In contrast, the present claims are drawn to a thermal insulation product wherein is required a loose fill (not limited to fiber products) and a carbonate of specific mean particle diameter. Applicants have demonstrated in the specification as originally filed that a carbonate of the claimed

mean particle diameter is able to provide a thermal insulation product of minimized thermal conductivity. The claims of the present application differ from the claims of the co-pending application at least as evidenced by the requirement of a “loose fill” in contrast to an “fiber” and the requirement that the carbonate of the present claims have a specific mean diameter in contrast to the requirement for a porous structure in the thermal insulation product of the co-pending application.

Applicants have demonstrated the significantly superior thermal conductivity achievable when limiting the mean diameter of the carbonate particles to 3 to 6 μm . Applicants submit that the significantly superior results achieved with the claimed carbonate are not obvious in view of the invention claimed in the co-pending application.

Applicants respectfully request the withdrawal of the rejection under obviousness-type double patenting.

RESPONSE TO RESTRICTION REQUIREMENT

The Office restricted the claims of the present application into the following Groups:

Group I (Claims 1-10) drawn to a thermal insulation product, and

Group II (Claims 11-24) drawn to a method of making a thermal insulation product.

Applicants elected, with traverse, the claims of Group I (Claims 1-10) for further prosecution.

Restriction is only proper if the claims of the restricted groups are either independent or patentably distinct. The burden of proof is on the Office to provide reasons and/or examples to support any conclusion with regard to patentable distinctness (MPEP § 803).

The Office has asserted that the inventions of Groups I and II are related as process of making and product made. Citing to MPEP § 806.05(f) the Office has stated that “in the instant case as shown by Applicant there is more than one way of dispersing the carbonate onto the fibers. As stated in MPEP § 806.05(f) inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different products or (2) that the product as claimed can be made by another and materially different process.” The Office has not demonstrated that the other ways of dispersing the carbonate onto the fibers are materially different and has therefore failed to meet its burden for requiring restriction. Accordingly, Applicants respectfully request the withdrawal of the Restriction Requirement.

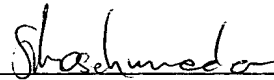
REQUEST FOR REJOINDER

Upon finding the subject matter of amended Claim 1 allowable. Applicants respectfully request rejoinder of Claim 11 on the grounds that Claim 11 is dependent from Claim 1 and must include all of the limitations of independent Claim 1. If the thermal insulation product of Claim 1 is patentable a method requiring the positioning of the novel and non-obvious thermal insulation product must also be allowable.

Applicants submit the amendment to the claims places all now-pending in condition for allowance. Applicants respectfully request the withdrawal of the rejections and the passage of all now-pending claims to Issue.

Respectfully submitted,

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